**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

AMERICAN VIDEO GRAPHICS, L.P.,	§	
	§	
Plaintiff,	§	**CIVIL ACTION NO.**
	§	
vs.	§	**6:05-CV-006**
	§	
MICROSOFT CORPORATION,	§	**JURY TRIAL**
	§	
Defendant.	§	

MEMORANDUM OPINION AND ORDER

This claim construction Opinion construes terms in U.S. Patent Nos. 4,761,642 (the "'642 patent") and 4,694,286 (the "'286 patent").

BACKGROUND

American Video Graphics ("AVG") alleges Microsoft infringes two of its patents, the '642 patent and the '286 patent. The '642 patent relates to an apparatus for displaying outputs of a plurality of simultaneously active computer processes in corresponding windows on a single screen. In particular, the '642 patent generally relates to a computer that processes two or more programs for the benefit of a user having a single display screen. For illustration assume that a user is actively word processing (one program) to create a research paper, but also intermittently checking email (a second program) to stay in touch with friends while online. The '642 patent generally relates to an arrangement whereby the output of the word processing program is directed to a first window of the single display screen, and the output of the email program is directed toward a second window of the same display screen.

The '286 patent also relates to the area of computer graphics and display, however in an area

less visible to an average computer user. In relevant part, the '286 patent relates a system for

altering the color of certain portions of a displayed graphic. In particular, the '286 patent discusses

a system whereby a user selects a single pixel from a graphic and changes the color of that pixel

from its original color to a new color. By changing that single pixel from an original color to a new

color, all pixels having the original color will also change to the new color.

APPLICABLE LAW

In claim construction, courts examine the patent's intrinsic evidence to define the patented

invention's scope. *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 338 F.3d 858, 861 (Fed. Cir. 2004) (citing

cases); *Bell Atl. Network Servs., Inc. v. Covad Communications Group, Inc.*, 262 F.3d 1258, 1267

(Fed. Cir. 2001). This intrinsic evidence includes the specification and the prosecution history. *C.R.

Bard, Inc.*, 388 F.3d at 861. First, courts give "claim terms their ordinary and accustomed meaning

as understood by one of ordinary skill in the art." *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361,

1368 (Fed. Cir. 2003). Second, the court must determine whether it must deviate from the claim

language's ordinary and accustomed meaning. *Bell Atl. Network Servs., Inc.*, 262 F.3d at 1268.

There is a "heavy presumption" that claim terms carry their ordinary and customary meaning, which

is only rebutted if the patent "expresses an intention to impart novel meaning to [them]." *Sunrace

Roots Enter. Co., LTD v. SRAM Corp.*, 336 F.3d 1298, 1302 (Fed. Cir. 2003); *Id*. "This

presumption is overcome: (1) where the patentee has chosen to be his own lexicographer, or (2)

where a claim term deprives the claim of clarity such that there is no means by which the scope of

the claim may be ascertained from the language used." *Bell Atl. Network Servs., Inc.*, 262 F.3d at

1268. This presumption is also overcome if the inventor disavowed or disclaimed the scope of

coverage. *Tex. Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1204 (Fed. Cir. 2002). When

a court attempts to define a term, it "immerses itself in the specification, the prior art, and other

evidence, such as the understanding of skilled artisans at the time of the invention, to discern the context and normal usage of the words in the patent claim." *Alloc, Inc.*, 342 F.3d at 1368.

"[A]mong the intrinsic evidence, the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms. Also, the specification may resolve ambiguous claim terms "where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone." *Id*. However, the specification may not redefine particular claim terms away from their ordinary meanings unless the intrinsic evidence "clearly set[s] forth or clearly redefine[s] a claim term so as to put one reasonably skilled in the art on notice that the patentee intended to so redefine the claim term." *Bell Atl. Network Servs., Inc.*, 262 F.3d at 1268 (internal quotations omitted). Thus, "although the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998). The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. *Home Diagnostics, Inc., v. Lifescan, Inc.*, 381 F.3d 1352, 1356 (Fed. Cir. 2004) ("As in the case of the specification, a patent applicant may define a term in prosecuting a patent.").

The patents in suit also contain means-plus-function limitations that require construction. Where a claim limitation is expressed in "means plus function" language and does not recite definite structure in support of its function, the limitation is subject to 35 U.S.C. § 112, ¶ 6. *Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). In relevant part, 35 U.S.C. § 112, ¶ 6

mandates that "such a claim limitation 'be construed to cover the corresponding structure . . . described in the specification and equivalents thereof.'" *Id*. (citing 35 U.S.C. § 112, ¶ 6). Accordingly, when faced with means-plus-function limitations, courts "must turn to the written description of the patent to find the structure that corresponds to the means recited in the [limitations]." *Id*.

Construing a means-plus-function limitation involves multiple inquiries. "The first step in construing [a means-plus-function] limitation is a determination of the function of the means-plus-function limitation." *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001). Once a court has determined the limitation's function, "the next step is to determine the corresponding structure disclosed in the specification and equivalents thereof." *Id*. A "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *Id*. Moreover, the focus of the "corresponding structure" inquiry is not merely whether a structure is capable of performing the recited function, but rather whether the corresponding structure is "clearly linked or associated with the [recited] function." *Id*.

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THE '642 PATENT [1]

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Process

The Court construes "process" to mean "a series of actions or operations executed by a computer program for a given purpose." AVG argues the term should be construed to mean "a series of actions or operations conducted by a computer system for a given purpose." AVG asserts that this definition comports with the entire technological and temporal context of the term, in view

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[1] Appendix A contains the relevant claims with the disputed terms in bold.

of the patent's specification and prosecution history. However, AVG's use of the phrase "computer system" results in a definition that is too broad and not sufficiently software-centric given the clear reference to a software process in the specification and file history. In particular, AVG's proposal provides no limitation on the number of programs or amount of time used for completing the "given purpose." This is inconsistent with the specification's clear reference to a "process" as a software process. Alternatively, Microsoft argues that "process" should be construed as "a program in execution." This definition is confusing because the phrase "in execution" implies that the "program" must have microprocessor attention in order to be a process. Such an implication contradicts the term's plain meaning and the specification. Thus, Microsoft's proposed definition will not sufficiently enlighten the jury.

Processing means for concurrently executing multiple processes

This element claims the function of "concurrently executing multiple processes, including first processes." The corresponding structure is a "multiple process host computer 12 suitably operating under the UNIX operating system, and equivalents thereof."

AVG's structure, "computer 12 and a multi-process operating system, and equivalents thereof," calls for a generic multi-process operating system rather than UNIX. AVG argues that the specification discloses a generic multi-process operating system in the phrase "running in a multi-process host computer 12," but, host computer 12 uses a UNIX operating system to achieve the multi-process functionality. *See* Col. 8:56-60; Fig 4.   Thus, the multi-process functionality is linked to UNIX, not generic software. AVG also argues that the patentee described a UNIX system because section 112 requires a patentee to disclose his best mode. This argument is unconvincing because the specification does not describe the UNIX system as a preferred embodiment, but rather as the only embodiment for effecting multi-process capability.

Microsoft argues that a multiple-user computer is required corresponding structure. Specifically, Microsoft contends that a host computer "is by its very purpose a multiple user computer" and the specification describes UNIX as a multi-user operating system and expressly links UNIX to the recited function. Microsoft also cites *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1268 (Fed. Cir. 1999), arguing that the law does not allow patentees to "parse through and break out of the identified structure only those aspects of the structure that purportedly performed the recited functions."

The Court disagrees with Microsoft's application of law to these facts. *Odetics* states, "[t]he individual components, if any, of an overall structure that corresponds to the claimed function are *not* claim limitations. Rather, the claim limitation is the overall structure corresponding to the claimed function. This is why structures with different numbers of parts may still be equivalent under § 112, P 6, thereby meeting the claim limitation." *Id.* (*emphasis added*). Therefore, the point of *Odetics* and other similar cases, is that specific structural details should *not* be imported as claim limitations if the overall structure (UNIX here) corresponds to the claimed function.   Microsoft admits that UNIX is linked to the multi-process function, so there is no reason to incorporate other potential components of UNIX. Furthermore, in this instance the inventor *was* simply describing his best mode in characterizing host computer 12 as multi-user. The multiple user aspect is not necessary to what is claimed here and is not linked to the claimed function.

First processes

The Court rejects both parties' proposed constructions and construes "first process" to mean "multiple application processes running as concurrent processes in a multiple process computer." Both parties agree that the first process is an application rather than the operating system. However, AVG's construction, "application processes," does not account for the inventor's disclaimers to

overcome prior art during prosecution: "Shaw et al do not describe a system by which multiple independent programs running as concurrent processes in a multiple process computer may each independently control displays in separate windows." Prosecution history, Amendment, June, 1987, pg 6. Microsoft's construction adopts this disclaimer, but unnecessarily adds that "independent programs" are "software separate from an operating system." Given that operating systems are now often bundled with application programs, sometimes without clear distinction between the application programs and the operating system, "independent programs" and "software separate from an operating system" may be confusing to lay jurors.

Virtual terminal process

Again the Court rejects both parties' proposed constructions and construes "virtual terminal process" to mean "a process to simulate the operation of a selected real terminal with respect to the transmission and receipt of input and output streams, except that each virtual terminal merely prepares and stores a set of instructions (a display list) for creating a full screen display according to the data from the associated first process; and each virtual terminal process does not independently control a separate screen." This construction is taken from the inventor's description of "virtual terminal" process, a term he coined, and with his statements made during prosecution in discussing an implementation of the invention. *See* Col. 2:27-39; Prosecution history, Amendment, June, 1987, pg. 4 ("[e]ach virtual terminal emulates a real terminal with respect to sending and receiving the input and output data streams produced by the corresponding program").

Display list comprising data defining a display in accordance with said output data produced by the corresponding first process

The Court modifies Microsoft's proposed construction and construes this term to mean "a set of instructions and/or data defining a display of a first process." AVG proposes that one of

ordinary skill in the art would interpret this term as requiring both text data and graphics data. Microsoft disagrees, noting that such a construction excludes the preferred embodiment, which describes separate display lists for text and graphics. *See* Col. 7:26-36, 9:57-62, 10:22-30. Microsoft further proposes that one of ordinary skill would interpret the display list as necessarily comprising "instructions." The Court is not persuaded by either party's arguments because they provide no basis to deviate from the plain and ordinary meaning of the term, which affirmatively requires neither instructions nor the combination of text and graphics data.

Screen process

The Court modifies AVG's proposed construction and construes "screen process" to mean "a process indirectly monitoring instructions regarding window control operations and using said instructions to generate and maintain in memory a subrectangle list." Microsoft criticizes AVG's proposed construction arguing that the claim language of "maintaining a subrectangle list" does not necessarily include "monitoring instructions regarding window control operations." Microsoft supports their argument by claiming that the specification describes two embodiments—one in which the screen process monitors the operator's instructions and one in which the display operating system monitors the operator's instructions and sends that information to the screen process—and the inventor chose to claim only the latter embodiment. *Compare* Col. 2:53-56 *with* 7:1- 8:16. AVG argues that the specification's later description is a more detailed recitation of its earlier description, and that the screen process may indirectly "monitor" the operator's instructions by receiving information from the display operating system.

The Court agrees with AVG that the patent discloses only one embodiment, but in two levels of detail. The specification generally describes the screen process as monitoring the operator's instructions and then goes on to describe in more detail how this occurs. Specifically, the display

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operating system monitors the operator's instructions and then communicates that to the screen

process. The plain language of the claim requires "a screen process *for maintaining* a subrectangle

list."   In this context, "maintaining" the subrectangle list means keeping the list current with

information regarding window control operations. Thus, "maintaining" is not possible without

cognizance regarding window control operations. Therefore, "maintaining" must include some sort

of monitoring, albeit indirect, of instructions regarding window control and necessarily uses those

instructions.

Display list process for periodically transmitting display data

Taken directly from the claim language, the Court construes "display list process" to mean

"a process for periodically transmitting display data to a single computer terminal." This claim

language is unambiguous. Furthermore, given that the Court is construing three incorporated terms

(i.e. "process," "periodically," and "display data"), any further definition is made at the risk of

juror confusion.

Display Data

"Display data" is "information that defines the size, position, and content of each displayed

window or window portion." All three uses of the term in the specification refer to the substantive

content of a display that is generated by a first process and is ultimately reflected in a display list.

Col. 6:6-9; Col. 8:60-62, and Col. 9:1-7. Therefore, to the extent a window is displayed, the display

data indicates content. Furthermore, according to the literal claim language, the display data also

indicates the positions and sizes, as defined by the subrectangle list, of the windows to be displayed.

Periodically

The parties have agreed that "periodically" means "from time to time." The Court agrees.

THE '286 PATENT[2]

Means for storing pixel color data, including index values and sets of hue (H), lightness (L) and saturation (S) color values

This element claims the function of "storing pixel color data, including index values and sets of hue (H), lightness (L), and saturation (S) color values, each index value associating one color, represented by one set of H, L, S color values, with at least one pixel."

The Court agrees with Microsoft that the corresponding structure is "indexed HLS color table of Fig. 4 stored in RAM 19, and equivalents thereof." AVG's proposed structure does not include the indexed HLS color table of Fig. 4, which AVG claims is not necessary to perform the function of "storing." AVG is correct that RAM 19 performs the "storing," but the indexed HLS color table is necessary for "storing pixel color data" because it is how the color data is organized in order for it to be stored.

In particular, the HLS color table of Fig. 4 is necessary to fulfill the function, because each stored index value must "associate" an HLS color value (in a small table at the top of figure 4) with a pixel (in the large table at the bottom of figure 4). As such, the storing means must be capable of "associating," thereby requiring the tables of Fig. 4.

Hue, lightness, and saturation color values

The Court construes this term to mean "computer-readable color data consisting of three numbers that represent the H value, L value, and S value (is the H, L, and S respectively) of a selected pixel." AVG proposed the following construction, "computer-readable data elements, each of which is indicative of a color's hue, lightness, and saturation." The Court disagrees because AVG's definition requires each "value" to have three components (one component for each of hue,

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[2] Appendix A contains the relevant claims with the disputed terms in bold.

lightness and saturation), and such requirement excludes the preferred embodiment. The claim

clearly calls for "sets" of H, L and S color values, indicating that each of H, L and S has a separate

value.

AVG agrees with Microsoft's definition of the individual terms of hue, lightness, and

saturation, and the Court construes them as follows. "Hue" is "the attribute which determines

whether the perceived color is red, yellow, green, blue or the like, and equivalents thereof."

"Lightness" is "the brightness of an area judged relative to the brightness of a similarly illuminated

area that appears to be white or highly transmitting, and equivalents thereof." "Saturation" is "the

amounts of color and grayness in a hue that affect its vividness; that is, a hue with high saturation

contains more color and less gray than a hue with a low saturation, and equivalents thereof."

Means for selecting a color of the image for modification by positioning a cursor at a specified pixel
having that selected color

The term is expressed in classic "means" form and thus there is a presumption favoring §112,

paragraph 6 treatment. AVG contends this term should not be treated as a means-plus-function

element under 35 U.S.C. §112, paragraph 6. AVG's argument merely states how the structure

operates, not what the structure is: "this element recites structure by specifying that the "means for

selecting" *operates by* "positioning a cursor at a specified pixel" (emphasis added). Contrary to

AVG's contention, the term does not sufficiently recite structure to overcome the presumption, and

it is thus subject to a construction under 35 U.S.C. §112, paragraph 6. *See Braun Med.*, 124 F.3d

at 1424.

Despite arguing it is not a means-plus-function term, AVG (contingently) proposes the same

function and corresponding structure for this element as Microsoft proposes. This element expresses

the function of "selecting a color of the image for modification by positioning a cursor at a specified

pixel having that selected color." The corresponding structure is the "cursor-positioning key or disk

key 13, and equivalents thereof."

Means for modifying at least one of the set of H, L, S color values associated with the specified pixel in response to input of new color data

The Court and the parties agree this element expresses the function of "modifying at least

one of the set of H, L, S color values associated with the specified pixel in response to input of new

color data." This element includes the sub-elements of "means for inputting new color data for at

least one of said set" and "processor means responsive to the new color data for changing said at

least one of the set of stored H, L, S color values to the new color data, enabling color modification,

according to the modified set, of all pixels of the image having the same index value as the specified

pixel."

The corresponding structure for means for modifying is "microprocessor 15 and computer

software for performing the claimed functions of modifying at least one of the set of H, L, S values

associated with the specified pixel in response to input of new color data, and equivalents thereof.

See also 'means for inputting' and 'processor means,' which are a part of the 'means for

modifying.'" This recited structure for the means for modifying is in addition to the corresponding

structures described in the "means for inputting" and "processor means" below.

i. Means for inputting new color data

This element expresses the function of "inputting new color data for at least one of said set."

The specification describes two embodiments for the means for inputting new color data. For the

first embodiment, the Court agrees with AVG that the corresponding structure is "Hue Key 29,

Lightness Key 31, Saturation Key 33, and equivalents thereof." For the second embodiment, the

corresponding structure is "Color Menu 43, Color Menu Key 41, Disk Key 13, and equivalents

thereof." AVG argues that the color menu key 41 is extraneous and should not be included in the corresponding structure. The color menu key is a necessary part of the alternative structure because it is used to bring up the color menu by pressing the color menu key and for implementing (i.e. inputting) the new color selection by releasing the key when the cursor is over the desired color.

Therefore the corresponding structure for this element is either: "Hue Key 29, Lightness Key 31, Saturation Key 33, and equivalents thereof; or Color Menu 43, Color Menu Key 41, Disk Key 13, and equivalents thereof."

ii. Processor means responsive to the new color data for changing said at least one of the set of stored H, L, S color values to the new color data

This element expresses the function of "changing at least one of the set of stored H, L, S color values to the new color data, enabling color modification, according to the modified set, of all pixels of the image having the same index value as the specified pixel." The corresponding structure is "microprocessor 15, Fig. 4, and computer software for performing the claimed functions, and equivalents thereof."

Menu key

The Court rejects the parties' proposed constructions and construes "menu key" to mean "a user-actuated input device, which allows the user to choose one of two options, e.g., select or deselect, such as a keyboard key, for displaying on the screen a set of selectable colors." AVG proposes that the term means "a user-activated input device . . . ." "Input device" is too broad and could refer to any device from which data is imported. Microsoft's construction, "key that when pressed discretely changes the color value associated with the input key," is too narrow.

Input key

For the same reasons given above, the Court rejects both parties' proposed constructions. The Court construes "input key" to mean "a user-actuated input device, which allows the user to choose one of two options, e.g., select or deselect, such as a keyboard key, for changing the value of one of the hue, lightness, and saturation values."

CONCLUSION

For the foregoing reasons, the Court interprets the claim language in this case in the manner set forth above. For ease of reference, the Court's claim interpretations are set forth in a table as Appendix B. The claims with the disputed terms in bold are set forth in Appendix A.

So ORDERED and SIGNED this 30th day of June, 2005.

LEONARD DAVIS
UNITED STATES DISTRICT JUDGE

APPENDIX A

U.S. PATENT NO. 4,761,642

1. In a computer system having a memory and having **processing means for concurrently executing multiple processes, including first processes**, each of which **first processes** receives input data produced by a computer terminal of said computer system and produces output data for controlling display on a screen of said computer terminal, a method for permitting concurrent data communication between a plurality of said first processes and a single computer terminal, the method comprising the steps of:

 initiating and concurrently executing for each of said first processes a corresponding **virtual terminal process** each virtual terminal process receiving input data from the single computer terminal and forwarding said input data to the corresponding first process, receiving output data produced by the corresponding first process, and maintaining a separate **display list** in said memory, said **display list comprising data defining a display in accordance with said output data produced by the corresponding first process**;

 initiating and executing a **screen process** for maintaining a **subrectangle list** in said memory, said subrectangle list comprising a set of instructions defining positions and sizes of display windows to be displayed on a screen of said single computer terminal, each window corresponding with a separate display list; and

 initiating and executing a **display list process** for periodically transmitting display data to said single computer terminal for causing said single computer terminal to concurrently display said display windows on said screen at positions and of sizes defined by said subrectangle list, each window including a display in accordance with the display defined by the corresponding subrectangle list.

U.S. PATENT NO. 4,694,286

1. An apparatus for modifying color characteristics of a displayed color image formed by a plurality of pixels, the apparatus comprising:

 means for storing pixel color data, including index values and sets of hue (H), lightness (L) and saturation (S) color values, each index value associating one color, represented by one set of H, L, S, color values, with at least one pixel;

 means for selecting a color of the image for modification by positioning a cursor at a specified pixel having that selected color; and

 means for modifying at least one of the set of H, L, S color values associated with the specified pixel in response to input of new color data, said modifying means including a **means for inputting a new color data for at least one of said set** and a **processor means responsive to the new color data for changing said at least one of the set of stored H, L, S color values to the new color data, enabling color modification, according to the modified set, of all pixels of the image having the same index value as the specified pixel.**

4. An apparatus as recited in claim 1 wherein the input means includes:

 a **menu key**, in response to actuation of which a menu of color items is displayed; and wherein the cursor is positionable at an item of the menu for selecting a color from the menu display.

6. A method as recited in claim 5 wherein said inputting step comprises the step of actuating at least one **input key** for entering **hue, lightness, and saturation color values**.

APPENDIX B

CLAIMS CONSTRUCTIONS FOR US PATENT NO. 4,761,642

Claim Language	Court's Construction
1. In a computer system having a memory and having **processing means for concurrently executing multiple processes, including first processes**, each of which **first processes** receives input data produced by a computer terminal of said computer system and produces output data for controlling display on a screen of said computer terminal, a method for permitting concurrent data communication between a plurality of said first processes and a single computer terminal, the method comprising the steps of:	**process:** a series of actions or operations executed by a computer program for a given purpose. **processing means for concurrently executing multiple processes:** Function: concurrently executing multiple processes, including first processes. Structure: multiple process host computer 12 suitably operating under the UNIX operating system, and equivalents thereof.
	first processes: multiple application processes running as concurrent processes in a multiple process computer.
initiating and concurrently executing for each of said first processes a corresponding **virtual terminal process** each virtual terminal process receiving input data from the single computer terminal and forwarding said input data to the corresponding first process, receiving output data produced by the corresponding first process, and maintaining a separate **display list** in said memory, said **display list comprising data defining a display in accordance with said output data produced by the corresponding first process**;	**virtual terminal process:** a process to simulate the operation of a selected real terminal with respect to the transmission and receipt of input and output streams, except that each virtual terminal merely prepares and stores a set of instructions (a display list) for creating a full screen display according to the data from the associated first process; and each virtual terminal process does not independently control a separate screen.
	Display list comprising data defining a display in accordance with said output data produced by the corresponding first process: a set of instructions and/or data defining a display of a first process.
initiating and executing a **screen process** for maintaining a **subrectangle list** in said memory, said subrectangle list comprising a set of instructions defining positions and sizes of display windows to be displayed on a screen of said single computer terminal, each window corresponding with a separate display list; and	**screen process:** a process indirectly monitoring instructions regarding window control operations and using said instructions to generate and maintain in memory a subrectangle list.
	subrectangle list [agreed]: a set of instructions indicative of which windows are to be displayed on the screen of the computer terminal, i.e., the display windows, the size of each display window, the positioning of each display windows on the screen, and the portions of which display windows are obscured by other overlapping display windows.
initiating and executing a **display list process for periodically transmitting display data** to said single computer terminal for causing said single computer terminal to concurrently display said display windows on said screen at positions and of sizes defined by said subrectangle list, each window including a display in accordance with the display defined by the corresponding	**display list process:** a process for periodically transmitting display data to a single computer terminal. **display data:** information that defines the size, position, and content of each displayed window or window portion.

Claim Language	Court's Construction
subrectangle list.	**periodically [agreed]:** from time to time.

CLAIM CONSTRUCTIONS FOR US PATENT NO. 4,694,286

Claim Language	Court's Construction
1. An apparatus for modifying color characteristics of a displayed color image formed by a plurality of pixels, the apparatus comprising:	
means for storing pixel color data, including index values and sets of hue (H), lightness (L) and saturation (S) color values, each index value associating one color, represented by one set of H, L, S, color values, with at least one pixel;	**means for storing pixel color data, including index values and sets of hue (H), lightness (L) and saturation (S) color values:** Function: storing pixel color data, including index values and sets of hue (H), lightness (L), and saturation (S) color values, each index value associating one color, represented by one set of H, L, S color values, with at least one pixel. Structure: indexed HLS color table of Fig. 4 stored in RAM 19, and equivalents thereof.
	hue (H), lightness (L) and saturation (S) color values: computer-readable color data consisting of three numbers that represent the H value, L value, and S value (is the H, L, and S respectively) of a selected pixel. **Hue:** the attribute which determines whether the perceived color is red, yellow, green, blue or the like, and equivalents thereof. **Lightness:** the brightness of an area judged relative to the brightness of a similarly illuminated area that appears to be white or highly transmitting, and equivalents thereof. **Saturation:** the amounts of color and grayness in a hue that affect its vividness; that is, a hue with high saturation contains more color and less gray than a hue with a low saturation, and equivalents thereof.
means for selecting a color of the image for modification by positioning a cursor at a specified pixel having that selected color; and	**means for selecting a color of the image for modification by positioning a cursor at a specified pixel having that selected color:** Function: selecting a color of the image for modification by positioning a cursor at a specified pixel having that selected color. Structure: cursor-positioning key or disk key 13, and equivalents thereof.

Claim Language	Court's Construction
means for modifying at least one of the set of H, L, S color values associated with the specified pixel in response to input of new color data, said modifying means including a **means for inputting a new color data for at least one of said set** and a **processor means responsive to the new color data for changing said at least one of the set of stored H, L, S color values to the new color data, enabling color modification, according to the modified set, of all pixels of the image having the same index value as the specified pixel.**	**means for modifying at least one of the set of H, L, S color values associated with the specified pixel in response to input of new color data:** Function: modifying at least one of the set of H, L, S color values associated with the specified pixel in response to input of new color data. Structure: microprocessor 15 and computer software for performing the claimed functions of modifying at least one of the set of H, L, S values associated with the specified pixel in response to input of new color data, and equivalents thereof. *See also* "means for inputting" and "processor means," which are a part of the "means for modifying."
	means for inputting new color data: Function: inputting new color data for at least one of said set. Structure: Hue Key 29, Lightness Key 31, Saturation Key 33, and equivalents thereof; or Color Menu 43, Color Menu Key 41, Disk Key 13, and equivalents thereof.
	processor means responsive to the new color data for changing said at least one of the set of stored H, L, S color values to the new color data: Function: changing at least one of the set of stored H, L, S color values to the new color data, enabling color modification, according to the modified set, of all pixels of the image having the same index value as the specified pixel. Structure: microprocessor 15, Fig. 4, and computer software for performing the claimed functions, and equivalents thereof.
4. An apparatus as recited in claim 1 wherein the input means includes: a **menu key**, in response to actuation of which a menu of color items is displayed; and wherein the cursor is positionable at an item of the menu for selecting a color from the menu display.	**menu key**: a user-actuated input device, which allows the user to choose one of two options, e.g., select or deselect, such as a keyboard key, for displaying on the screen a set of selectable colors.
6. A method as recited in claim 5 wherein said inputting step comprises the step of actuating at least one **input key** for entering hue, lightness, and saturation color values.	**input key:** a user-actuated input device, which allows the user to choose one of two options, e.g., select or deselect, such as a keyboard key, for changing the value of one of the hue, lightness, and saturation values.